

Amendment Pursuant to 37 C.F.R. §1.111  
Responsive to Office Action of August 24, 2005  
USSN 09/991,126  
November 23, 2005  
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**Amendments to the Specification:**

Please replace paragraph [0028] with the following replacement paragraph:

[0028] An exemplary embodiment of the present invention is shown in FIG. 1A and is designated generally by reference numeral 10. As embodied herein and referring to FIG. 1, an optical communication system 10 includes a transmitter 11 for transmitting an optical signal, a receiver 12 for detecting the optical signal, and an optical fiber communication link interposed between the transmitter and the receiver. A portion of an optical communication system 10, including includes at least one Raman assisted EDFA hybrid amplifier 12. The hybrid amplifier includes transmission fiber 14, a Raman gain source 16, an EDFA gain source 18, and an optical attenuator 20. The Raman gain source 16 includes a Raman pump module 22, having one or more Raman wavelengths. Each can be independently adjustable through separate attenuators or through bias adjustments. In this preferred embodiment, the Raman gain source 16 is coupled to the transmission fiber 14 by way of coupler 24. The coupler may be any known type such as a WDM module or a 3 dB device. The Raman gain is introduced into the transmission fiber 14 in a counter[-]propagating direction.

Please replace paragraph [0033] with the following amended paragraph:

[0033] In this regard, FIG. 2 illustrates the equivalent noise figure (dB) versus internal Raman gain (dB) for an exemplary 100 km span. In this example, the equivalent (lumped) single amplifier noise figure is calculated so that an equivalent chain of optical amplifiers with the same span loss, the same equivalent noise figure, and the same path average intensity have the same output SNR as the hybrid (distributed Raman, EDFA) chain. Equivalent noise figures of 3-4 dB means that the hybrid chain is performing as well as a conventional EDFA chain (i.e., no net improvement). The minimum equivalent noise ~~FIG. 30~~ in FIG. 2 is approximately 0.7 dB which is achieved for a Raman gain of about 14 dB. Therefore, a maximum Raman gain of about 14 dB in every span significantly improves the noise performance by about 3.4 dB compared to no Raman ~~[[ ]]~~ gain at all (for 100 km spans). The performance improvement of Raman gain reduces for shorter spans. The largest improvement is achieved for the very long spans.